

WHAT IS CLAIMED IS:

1. A position detecting method comprising the steps of:

- 5 forming an image of a mark on a sensor;
 performing a first process that processes a
raw signal obtained from the sensor with plural
parameters;
 performing a second process that determines
10 an edge of a signal processed by the first process for
each parameter;
 determining a parameter from a result of the
second process obtained for each parameter; and
 calculating a position of the mark based on a
15 determined parameter.

2. A position detecting method according to
claim 1, wherein the first process is zero phase
filtering, and the parameters for the first process
20 include an order of a filter.

3. A position detecting method according to
claim 1, wherein the first process is polynomial
approximation, and the parameters for the first process
25 include an order of a polynomial.

4. A position detecting method according to claim 1, wherein the mark includes plural elements arranged at a certain pitch based on a design value, and said step of determining the parameter is based on
5 a deviation of intervals between the elements from the design value calculated by using the result of the second process.

5. An exposure apparatus comprising:
10 a projection optical system that projects a pattern formed on a reticle onto a wafer; and
a position detection system for detecting a position of a mark formed on the wafer, said positing detection system detecting the position of the mark
15 using the position detecting method according to claim 1.

6. A device fabrication method comprising the step of:
20 applying resist onto a wafer;
projecting a pattern formed on a reticle onto the wafer using an exposure apparatus according to claim 5; and
developing the resist exposed.

25